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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/533,849	10/24/2005	Hiroshi Fukui	71,051-007	7869
27305 7590 02/29/2008 HOWARD & HOWARD ATTORNEYS, P.C. THE PINEHURST OFFICE CENTER, SUITE #101 39400 WOODWARD AVENUE BLOOMFIELD HILLS, MI 48304-5151			EXAMINER MATOCHIK, THOMAS L.	
			ART UNIT	PAPER NUMBER
			1796	
			MAIL DATE	DELIVERY MODE
			02/29/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/533,849

Applicant(s)

FUKUI, HIROSHI

Examiner

THOMAS MATOCHIK

Art Unit

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 December 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-946)
- 3) ☐ Information Disclosure Statement(s) (PTO/SE/US)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION***Comments***

The applicant's amendment filed on 12/26/2007 was received. Claim 1 is amended and claim 7 is cancelled.

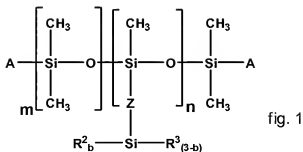
Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakano et al. (US 6,306,957) and in view of Peterson (US 5,011,870).

Regarding claims 1 and 2: Nakano teaches a thermally conductive organosiloxane composition comprising a silicone oil, formula (2), shown in figure1:



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where:

R^2 is a monovalent hydrocarbon group of 1-4 carbons

R^3 is an alkoxy group of 1-4 carbons

A is a methyl or

$$\text{ZSiR}_b^2\text{R}_c^3 \text{ where Z is oxygen or a hydrocarbon group}$$

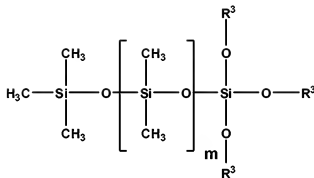
b is 0, 1 or

m is 3 to 100

n is 0 to 50

when $n=0$ then at least one A group is $ZSiR^2_bR^3_{(3-b)}$

When $n=0$, one A is methyl and the other A is the functional group shown with the "Z" group, the resulting structure is shown in fig. 2:



where R³ is an alkoxy group from 1 to 4 carbons

fig. 2

Nakano also teaches an alumina powder thermally conductive filler (col. 9, line 10-13) which is mixed with formula (A), (col. 7, lines 47-53). Nakano does not teach a silicone where one of the groups bonded to silicon is an alkenyl group.

However, Peterson teaches a liquid polyorganosiloxane matrix polymer for aluminum hydride containing thermoconductive compositions where the silicon bonded groups are monovalent substituted or unsubstituted hydrocarbon groups (col. 4, lines 35-46). He further teaches that each molecule of the polyorganosiloxane can optionally contain one or more functional groups bonded to silicon atoms. These groups include: hydroxyl, alkoxy, hydrogen atoms and ethylenically unsaturated groups such as vinyl (col. 4, lines 47-55). Therefore, the structure shown in fig. 3 can be envisioned by these teachings:

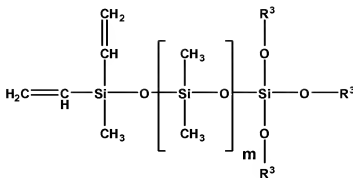


fig. 3

This structure meets the requirements for general formula A₁ of the instant where: R¹ is a vinyl group, R² is a methyl group, a=2, m=0, n>0, c=1 and d=3. Nakano and Peterson are analogous art namely, thermally conductive silicone compositions. At the time the invention was made a person having ordinary skill in the art would have recognized that the teachings of Nakano regarding condensation polymerization reactions and curing of the polysiloxanes combined with the teaching of Peterson regarding unsaturated groups and hydrolyzable groups in the same molecule would lead to silicone compositions having a wide viscosity range, improved workability and high thermal conductivity.

Regarding claim 3: Nakano teaches the basic claimed composition as set forth in claims 1 and 2 above. Nakano further teaches that the heat conductive filler is preferably a mixture of two powders having different particle diameters. A larger particle size alumina having a range of particle diameters of 5-40 microns is mixed with a smaller particle size alumina having a range of particle diameters of 0.1 to 3 microns (col. 6, lines 33-39).

Regarding claim 4: Nakano teaches the basic claimed composition as set forth in claims 1 and 2 above. Nakano further teaches the ratio of large and small particle diameter aluminas described above is 80% large particles and 20% small particles (col. 9, lines 10-13).

Regarding claim 5: Nakano teaches the basic claimed composition as set forth in claims 1 and 2 above. Nakano further teaches the alumina content is 800 parts per 100 parts of the polyorganosiloxanes (col. 10, Table 1, lines 5-10).

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Regarding claim 6: Nakano teaches the basic claimed composition as set forth in claims 1 and 2 above.

Nakano also teaches a hydrosilation curing reaction using a organohydrogenpolysiloxane (col. 7, lines 2-6).

Nakano does not teach the composition of silicone oils (A₁) and (A₃).

However, Peterson teaches the silicone oil (A₁) as shown in fig. 3 above. In addition, he teaches the silicone oil (A₃), (col. 4, lines 47-55) where hydrogen atoms can be substituted on the silicon backbone leading to the structure shown in fig. 4:

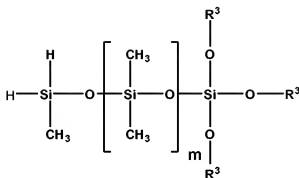


fig. 4

Nakano and Peterson are analogous art namely, thermally conductive silicone compositions. At the time the invention was made a person having ordinary skill in the art would have recognized that the teachings of Nakano regarding condensation polymerization reactions and curing of the polysiloxanes combined with the teaching of Peterson regarding unsaturated groups and hydrolyzable groups in the same molecule would lead to silicone compositions having a wide viscosity range, improved workability and high thermal conductivity.

Response to Arguments

Applicant's arguments with respect to claims 1-6 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to THOMAS MATOCHIK whose telephone number is (571)270-3291. The examiner can normally be reached on Monday-Friday 7:30 AM-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on 571-272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mark Eashoo/
Supervisory Patent Examiner, Art Unit 1796
26-Feb-08

TLM
2/20/2008